



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
03.11.2004 Bulletin 2004/45

(51) Int Cl.7: **H04B 1/10**, G11B 20/24,
H04B 1/12, G11B 20/00,
H04B 1/16

(43) Date of publication A2:
10.04.2002 Bulletin 2002/15

(21) Application number: **02000352.1**

(22) Date of filing: **07.06.1994**

(84) Designated Contracting States:
AT BE CH DE DK FR GB IT LI NL SE

(72) Inventors:
• Kane, Joji
Nara-shi, Nara-kenn (JP)
• Nohara, Akira
Nishinomiya-shi, Hyogo-kenn (JP)

(30) Priority: **08.06.1993 JP 13703593**
08.06.1993 JP 13703693

(62) Document number(s) of the earlier application(s) in
accordance with Art. 76 EPC:
94108711.6 / 0 629 054

(74) Representative: **Grünecker, Kinkeldey,**
Stockmair & Schwanhäusser Anwaltssozietät
Maximilianstrasse 58
80538 München (DE)

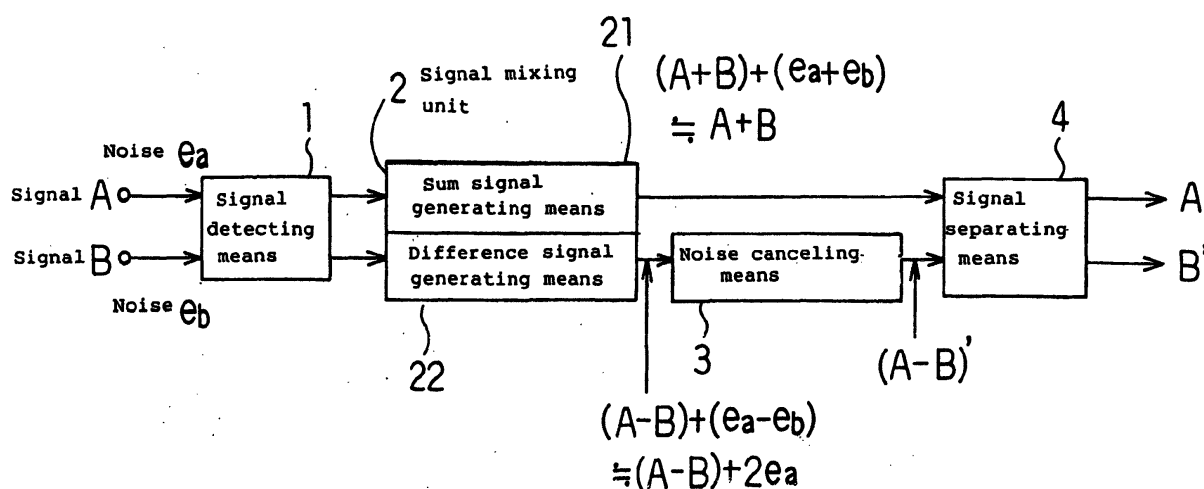
(71) Applicant: **Matsushita Electric Industrial Co., Ltd.**
Osaka 571-8501 (JP)

(54) **Noise suppressor**

(57) A noise suppressor has signal detecting device 1 for detecting signals A and B on signal lines, sum signal generating device 21 for summing the detected signals, difference signal generating device 22 for differencing the detected signals, noise canceling device 3 for suppressing or removing noise components in a dif-

ference signal generated by the difference signal generating device and signal separating device 4 for separating the signal to those corresponding to the signal lines, according to the difference signal with the noise components suppressed or removed and the sum signal.

F I G . 1



In a balanced type transmission system, $e_b \approx -e_a$



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 02 00 0352

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	US 4 054 910 A (WAYNE W. CHOU ET AL) 18 October 1977 (1977-10-18) * column 2, line 26 - line 28; figure 2 * * column 4, line 9 - line 10 * -----	1	H04B1/10 G11B20/24 H04B1/12 G11B20/00 H04B1/16
X	DE 34 31 994 A (OLYMPUS OPTICAL CO.) 4 April 1985 (1985-04-04) * page 12, line 7 - line 23; figure 2 * -----	1	
X,P	WIRSUM S: "SYMMETRISCHE TONFREQUENZUBERTRAGUNG" FUNKSCHAU, FRANZIS-VERLAG K.G. MUNCHEN, DE, vol. 65, no. 20, 17 September 1993 (1993-09-17), pages 78-82, XP000395177 ISSN: 0016-2841 * page 80, left-hand column, line 1 - line 8 * -----	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			H04B G11B H04N
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
Berlin		9 September 2004	Gérard, E
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03 82 (P04C001)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 02 00 0352

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

09-09-2004

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4054910	A	18-10-1977	NONE	

DE 3431994	A	04-04-1985	JP 60055923 A	01-04-1985
			DE 3431994 A1	04-04-1985
